GEOGRAPHIC NEWS BULLETINS

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Photograph by Richard H. Stewart

COLOSSAL HEAD PLAYS SPHINX ROLE FOR "EGYPT OF THE AMERICAS"

This 10-ton carved basalt head, topped by a prehistoric football helmet, is one of the exciting discoveries that are making Maya regions an American "Egypt" for archeologists. The National Geographic Society-Smithsonian Institution Expedition in 1939 found the Colossal Head at the Tres Zapotes site in Mexico, to which a second expedition has returned in 1940 to continue excavations. In the same vicinity a stone was found bearing a date interpreted as 291 B.C., the oldest date record yet known in the New World. As no metal tools were found there, sculptors must have used stone and bamboo tools, with sand as an abrasive (Bulletin No. 5).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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General Headquarters, Washington, D. C.

Danube Now "Dark Blue" With Traffic and Tension

OIL and water are mixing now in the caldron of Central European politics, and oil is flowing upstream on the Danube. The new trade agreement by which Romania has recently consented to increase oil shipments for Germany has quickened the tides of commerce in Europe's second longest river, the life-line of southern European shipping. Because of the British blockade, oil shipments can travel more safely up the Danube from Romania, where the river empties, to Germany, where it rises. Winter ice is adding further complications to river traffic.

To most Americans, a mention of the Danube River first brings to mind one of the world's favorite waltz tunes, Strauss' "Blue Danube." But to Europeans it is a mighty highway of commerce from southern Germany across the Balkans to the Black Sea. The 1,750-mile river also forms parts of three international boundaries, separating Slovakia and Hungary, Yugoslavia and Romania, and the latter country and Bulgaria.

100 Miles of 1,750-Mile Course Open to Sea Commerce

It weaves its way through or beside six European countries: Germany, Slovakia, Hungary, Yugoslavia, Bulgaria, and Romania. When Austria and Czecho-Slovakia were independent, the count was higher. Of all Europe's rivers only the Volga is longer.

Up and down this international waterway move all manner of craft: passenger boats carrying soldiers, salesmen, tourists, and peasants; busy tugs towing dingy barges with neat little flower boxes; romantic rafts steered by less romantic raftsmen; here a sailboat, there a rowboat, or perhaps an adventurous *faltboat* (folding boat). From the Danube's mouth, sea-going vessels may sail upstream as far as the Romanian town of Braila, about 100 miles inland. Here transshipments of all kinds of cargoes are made to barges or railways.

Although the most important river in southern Europe, the Danube is so shallow in places that tugboats often have dredges on their prows to cope with mud banks and sand bars.

Rises in Germany Near Source of Rhine

Its source is in Germany's Black Forest, only about 100 miles from the sources of two other master rivers of Europe, the Rhine and the Rhone. It flows southeast through former Austria, past Vienna. Annexation of Austria to Germany brought 340 additional miles of the river within the confines of the German Reich. Touching briefly on the Slovakia-Hungary border, the stream then moves sluggishly across the plains of Hungary. Next it flows through northeastern Yugoslavia and cuts through the Transylvanian Alps at the famous Iron Gate, on the Yugoslav-Romanian frontier, where the river boils and rushes among dangerous rocks. After forming the Bulgarian-Romanian boundary for some 235 miles, it flows north into Romania to Braila, and then meanders through a marshy delta, by several branches, into the Black Sea. The title for Johann Strauss' famous waltz would have been more accurate if it had called the Danube brown instead of blue; the river carries something like 100,000,000 tons of silt per year down to its mouth.

Ever since the days of the Crusades trade has flourished along the Danube. Medieval robber barons swooped down from castles to fill their halls with loot from westbound traffic in silks, bronzes, spices, and oils. Or perhaps good fortune brought eastbound furs, arms, and saddlery. Great capital cities like Vienna, Bel-

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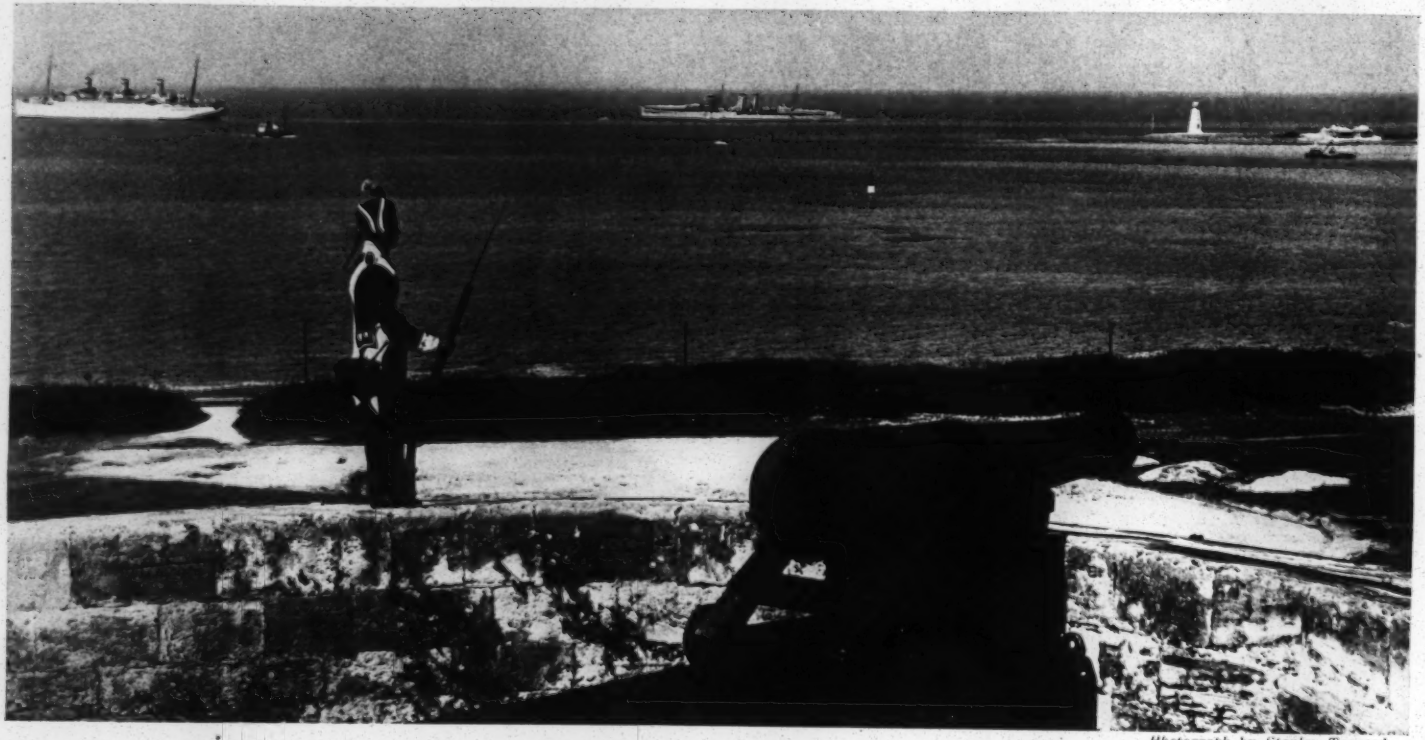

Photograph by Stanley Toogood

THE NASSAU SENTRY WEARS A COSTUME TO MATCH THE COLONY'S PRE-REVOLUTIONARY STATUS

Fort Charlotte, overlooking the harbor of Nassau in the Bahamas, was built by a British governor thrown out of a job when the colony of Virginia revolted against George III. The old fort still bears the name of King George's wife. The sentry's colonial costume is but one of the pre-Revolutionary relics to be found in Nassau's numerous old forts. On the waterfront beyond Fort Charlotte is the famous Sponge Market, in which a sponge exchange normally disposes of large cargoes of this Bahaman product, typical of the specialties which Britain's American colonies supply to the mother country (Bulletin No. 3).

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1939 Saw Progress in Explaining Some Biological Mysteries

NOTABLE progress has been made in 1939 in answering some age-old mysteries of the science of life.

Can plant life develop into animal life?

How many parents must a baby animal have?

Could plants live without their green color?

Man lives by eating vegetable, or plant, and animal food; animals live by eating plants and other animals; but plants live by "eating" sunlight and air. It has long been known that plants have a secret formula for capturing the sun's energy from light, absorbing carbon dioxide from the air, collecting water from the earth and air, and combining these elements into foods.

Plants Work "Overtime" as Light's Effect Continues in Dark

The plant foods mysteriously cooked up by this neat combination of light, air, and water are stored inside the plant's own fibers in the form of carbohydrates (starches, sugars, etc.). Thus the sun's energy, in the form of calories of sugar or starch, is packed away for storage in a shape which animals and humans can digest—grass, spinach and pineapples, prunes and potatoes.

The process by which plants manufacture, or synthesize, food from the elemental ingredients is known as photosynthesis, or "light-synthesis." The theory has been that plants could carry on this food-making process only while actually in the light. But Dr. E. D. McAlister, Smithsonian Institution, has caught plants still busy at the process after dark. This food-making procedure is regulated by a chemical in the plant, as yet unknown. The action of the chemical is set in motion by light; but photosynthesis does not start immediately when light falls on the plant, for the chemical requires a "warming-up" period. Likewise, after the plant is in the dark, the chemical's action requires a little time to slow down, and consequently photosynthesis during that time takes place without light.

Plant Cells Grow To "Astronomical" Size

The part of the plant which carries on the food-making process is the same that gives the characteristic green color. The green matter, called chlorophyll, is one of the most common things in the world, yet one of the most mysterious. Where does it get its ability to combine water with carbon dioxide and sunlight and manufacture sugar? Scientists have been probing the secret of chlorophyll for years. Now Drs. O. L. Inman, Antioch College, and A. F. Blakeslee, Carnegie Institution of Washington, have reported the discovery of a new variety of chlorophyll. They found it in jimson weed grown from seed that had been subjected to X-rays. This is the first such discovery to be reported.

Since chlorophyll is the food-making part of a plant, could a plant "eat" without chlorophyll? Yes, said the scientists of 1939. Dr. Andre Lwoff, in his laboratory at the Pasteur Institute, Paris, persuaded a single-celled plant to give up its green coloring, or chlorophyll, and it continued to live. But in answering that question, Dr. Lwoff brought up another: Is the plant still a plant if it no longer feeds itself on the elements, but eats—as Dr. Lwoff's plant did—other plant life? The presence of chlorophyll has been regarded as a fundamental distinction between plant and animal life. That science has now seen how a plant could have crossed the bridge into the animal world has opened up new possibilities. Further experiments may reveal how animal life evolved from the world's primeval plant growth, so that life on earth was no longer limited to vegetation.

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grade, and Budapest have grown up on the Danube. Medieval cathedral spires of Ulm and Regensburg and Bratislava (Pressburg) still cast long shadows over the valley. Ruined Dürnstein castle, on a bluff above the water, marks the spot where Richard the Lionhearted was imprisoned on his way home from the Crusades, and was discovered by his faithful minstrel, Blondel. Countless other castles and many monasteries have thrived and "died" while the Danube flowed on.

In the Danube valley dwelt Celts of the Stone Age. The Romans pushed their frontier there fourteen years before Christ. Emperor Trajan (98 A. D.) on his Dacian campaign built a road for his Roman soldiers along the sheer face of a cliff, overhanging the river, and carved his initials there before passing on. Goths and Huns ravaged the country. Here Charlemagne the Frank warred against the Avars, hostile folk from the east, and planned a canal to connect Danube and Rhine. Crusaders by the thousands sailed downstream on 11th century pilgrimages to Palestine. Sultan Seliman the Turk whetted, but failed to satisfy, his appetite for western conquest in this river region. Gustavus Adolphus and his Scandinavian forces turned the Danube's banks into battle grounds during the conflict with German General Tilly. Napoleon, too, pursued his ambitions here.

Note: The course of the Danube, its traffic, the varied people who live along its banks, and the cities beside it are described, with illustrations, in "The Danube, Highway of Races," *National Geographic Magazine*, December, 1929. For additional material on these subjects see also "Kaleidoscopic Land of Europe's Youngest King" (Yugoslavia), June, 1939; "American Girl Cycles Across Romania," November, 1938; "Czechoslovaks, Yankees of Europe," August, 1938; "Austrian August—And September," April, 1938; "Magyar Mirth and Melancholy" (Hungary), January, 1938; "By Sail Across Europe," May, 1937; "The Spell of Romania," April, 1934; and "Jugoslavia—Ten Years After," September, 1930.

Bulletin No. 1, January 15, 1940.

Photograph by Erno Vadas

THE DANUBE IS THE HYPHEN BETWEEN BUDA AND PEST

Hungary's capital started as two cities, Pest on the left bank of the river and Buda on the right; now they are virtually one, and appear together in the name, Budapest. Seen through arches on the Buda side of the Danube, Pest is dominated by the four-acre Parliament House, whose Gothic lines and riverside position are reminiscent of London's government buildings beside the Thames. To do justice to the mighty river, Budapest has several impressive bridges; the Chain Bridge was, at the time of its construction, the longest suspension bridge in the world.

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British Empire Is 30 Per Cent American

A NEW battle flag is flapping beside the Union Jack in British training camps: the standard of the Canadian Active Service Forces. The flag shows Canada's three red maple leaves on a white field between a British Union Jack and three French golden fleur de lis. Since the Canadian troops reached England several weeks ago, frequent comments have appeared on the large and loyal section of the British Empire which lies in the Americas.

The vast extent of Canada, largest of Britain's five Dominions, is greater than Australia's and surpasses that of the United States as well, Alaska included; it is responsible for most of the British territory in the New World, which constitutes 30 per cent of the entire Empire.

Four Million Square Miles of New World under British Flag

Scattered from above the Arctic Circle to below the Antarctic, Britain-in-the-Americas comprises one Dominion, eleven Colonies, and a sprinkling of Dependencies. Three of these units are larger than Great Britain. Another is nearly as large as England. The smallest is Bermuda, a pocket edition Colony of 19 square miles.

In this "all-American" hemisphere, the northernmost island fringe of North America and the southernmost island fringe of South America are British. Also British islands dot the Atlantic from the South Orkneys off Antarctica to Newfoundland, the easternmost outpost of North America. The Caribbean lies within a British arc, from the Bahamas beside the Straits of Florida to Trinidad off South America, including Barbados, the easternmost of the West Indies, and San Salvador, where Columbus first set foot on his strange and unsuspected new world.

In all, about four million square miles of New World territory is under the British flag. Much of this land is either forest primeval, prairie still unplowed, rain-drenched tropical jungle, or bleak and snowy tundra fringing a Polar sea. In British Guiana, sloping down from the [illegible]orhood of the Equator to South America's north coast, there are only three people to a [illegible]mile. (A comparable figure for the United States is 40.) Nine-tenths of Canada is virtually unpopulated; the average for the whole country is two inhabitants per square mile. Labrador, five times as large as New York State and containing no more people than a couple of ocean liners, has 49 square miles of space for each person. As a result of sparse population in these three largest units, the New World 30 per cent of Britain's empire has only two per cent of Britain's subjects.

More Than One-Fifth of New World British Subjects Are French

After Canada, the largest collection of British colonials in the Western Hemisphere is in Jamaica, once treasured by a remote mother country as the "Pearl of the Caribbean." It has more than a million inhabitants, and is a hundred times more densely populated than Canada. For density of population, however, the tiniest islands take the prize. Bermuda, thanks to a busy Atlantic cruise trade, supports 1,600 people to the square mile. The venerable old colony of Barbados has an area of 166 square miles, and more than a thousand inhabitants on each, with room besides for cane enough to supply sugar, molasses and rum for export.

Of the thirteen million British subjects in the Americas, more than one-fifth are French, concentrated mainly in and around the Province of Quebec. Many of the thirteen million are Negro descendants of the slaves from Africa with whom British traders populated Caribbean colonies then under the rule of Spain. Four out of five of Jamaica's inhabitants are black; three out of five of Bermuda's. A ban on slave trade was responsible for two colorful elements in Britain's American patchwork of peoples: the Chinese and the East Indians brought in as indentured servants. More than 40 per cent of the people of British Guiana are East Indian, and there are large groups in Trinidad and Jamaica. American Indians also are among America's British subjects (illustration, next page).

Each dominion or colony makes a characteristic contribution of raw materials to the British Empire's economy, with the possible exception of Bermuda. The chief exports of this mid-Atlantic colony are small quantities of potatoes, onions, and Easter lilies. Fishermen of the Bahamas (illustration, inside cover) collect sponges, turtles, and ambergris, while the landsmen raise sisal and tomatoes for foreign markets.

Barbados, which was traditionally the first British colony to grow sugar cane, now supplements its 16th century trade staples of sugar and molasses with fruits and building lime. Jamaica gets most of its revenue from bananas, most of its prestige from the famous Blue Mountain coffee, and most of its reputation from ginger and rum.

Each of the units in the Leeward Islands has a specialty to export: St. Kitts ships salt; Dominica sends limes, lime oil, and lime juice; Montserrat, onions and tomatoes; the British Virgin Islands, tobacco; and Antigua exports cotton, sugar, and molasses.

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One of the problems in studying plant life is the difficulty of isolating simple, unspecialized plant cells, so as to investigate elemental life not complicated by specialization. Dr. P. R. White, Rockefeller Institute, has announced the first pure cell culture. He started it with a bit of primitive cell material about the size of a grain of mustard, cut from a wartlike bump on a tobacco plant. He found that the culture grew so fast that part of its growth had to be periodically discarded. In theory, if its rate of growth remained unchanged, if the cells were provided with ideal food and protected from being smothered by their rapidly growing fellows, the culture within forty weeks would have been a mass 600,000,000 miles in diameter.

A scientific "fish story" came to light when a surprised fisherman's catch turned out to be a "living fossil," a fish of a type believed to have been extinct for 60,000 years. The fish was caught off the tip of South Africa, and identified by Dr. J. L. B. Smith, Rhodes University College, Grahamstown, South Africa. He said it was a coelacanth; no living example had ever before been identified.

Climaxing years of research, Dr. Gregory Pincus, Clark University, was able to bring to normal birth a rabbit which was produced with only one parent (by scientifically induced parthenogenesis). The ovum from which the fatherless rabbit developed was not fertilized in the usual manner but was temporarily removed from the mother and subjected to a saline solution and heat. By the laws of heredity only female offspring can result from this procedure. The fatherless rabbit has already produced a litter of young in the ordinary way.

THE PLANT THAT EATS ANIMALS MAKES THE MAN-BITES-DOG KIND OF NEWS

Virtually all animals depend on plants for their food, but it is a rare plant that turns the tables and devours animals. Some plants have devices for luring, catching, and digesting insects. One of these "meat-eating" flowers is the *Darlingtonia*, shown here as photographed in California. The process by which plant life in general obtains food has been the subject of research which furthered scientific advances during 1939.

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Astronomers and Geologists Active in 1939

THAT astronomers found 1939 an unusually satisfactory year may be concluded from a brief resumé of some of the work accomplished during the past twelve months, in the fields of astronomy and the earth studies.

Sunspots were large and numerous during the first half of the period, but started to wane toward the year's end. More comets were seen than for several years—in all, fourteen.

And Mars came nearer to the earth on July 27 than at any other time since 1924. Within 36,000,000 miles of the earth on that date, Mars seemed strangely peaceful with a new dark green oasis, and a new "canal" suggested in photographs taken by E. C. Slipher of the Lowell Observatory, Flagstaff, Arizona. Mr. Slipher journeyed to Bloemfontein, South Africa, to get a better view of the planet.

"Puff Ball" Stars Discovered

Two new types of stars were announced during the year. First, "puff-ball" stars, which brighten and dim in the space of a day or less, were reported by Harvard scientists. Professor G. P. Kuiper, University of Chicago, found "Wolf 457," a member of the recently discovered super-heavy "white dwarf" stars. Wolf 457 was estimated to weigh 9,000 tons to the cubic inch.

In addition, the same astronomer described some sixty stars which belong, he said, to a previously unknown type which he places between the dwarf and the white dwarf groups.

In May the MacDonald Observatory was formally opened by the Universities of Texas and Chicago on Mount Locke, Texas. It houses an 82-inch telescope, the second largest instrument of its kind now in use.

At the year-end the two-hundred-inch giant telescope on Mount Palomar was rapidly nearing completion.

How Thick Is the Earth's Crust?

Professor Jan Schilt, Columbia University, reported, after extensive research, that correction of a systematic error made in determining the distances of stars in the earth's galaxy will reduce by one-half the distances hitherto accepted between the earth and some 5,000 stars.

The same system of calculation is not used for more distant stars, but Dr. Joel Stebbins, Washburn Observatory, believes that the presence of interstellar dust has led astronomers to overestimate greatly the distances of those more remote stars.

That the earth is still a growing, changing planet, was emphasized by a report by Dr. E. G. Zies of the Carnegie Institution of Washington. He found that Santiaguito, a new volcano forming on the floor of the old crater of Santa Maria, Guatemala, rose about 1,000 feet in three years. It is still growing, but is less spectacular now, since it is widening at the bottom rather than increasing in height.

Professor Bailey Willis of Stanford University discovered that the rate of degeneration of radioactive elements in granite indicates that the granite crust of the earth, ordinarily accepted as a layer about 25 miles thick, actually varies in thickness and in some places is non-existent. Such variations indicate, according to Professor Willis, as much as a billion years' difference in the ages of the various sections of the earth's crust.

One of the most striking auroras of the past ten years occurred August 11, when the illumination from an aurora borealis was so great as to permit motorists to drive without headlights in parts of New York State. More than 150 photographs, a score in natural color, and 500 exposures with a motion picture camera

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Of the three island families in the Windward group, St. Vincent has a reputation for superior Sea Island cotton, and almost a monopoly on arrowroot. St. Lucia thrives on a trade in lime oil and lime juice, bay oil and bay rum. Grenada and its dependent Grenadines produce cocoa, nutmegs, and mace. British Honduras, England's only slice of the ancient Maya Empire, once entered world commerce in mahogany; but a diminished mahogany trade has left the little country with exports of bananas, cacao, and chicle for chewing gum.

British Guiana also helps to fill the British food basket, with sugar, limes, coffee, rice, and rum. But more substantial contributions to the wealth of Britain are diamonds, gold, and bauxite (the ore of aluminum). The chief mineral treasure box of the Caribbean is the Island of Trinidad, now the largest producer of oil in the British Empire. The same pitch lake from which Sir Walter Raleigh caulked his ships supplies annually almost a million dollars' worth of asphalt.

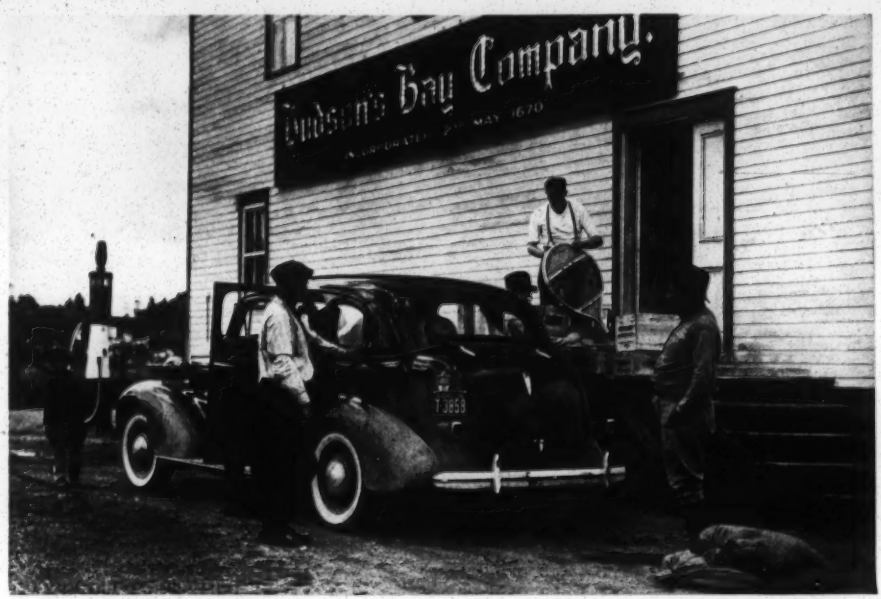
The far-south colony of the Falkland Islands, with its far-flung dependencies near the Antarctic Circle, contributes wool from its extensive sheep-farming industry. The island of South Georgia is a headquarters for whaling, which produces 150,000 barrels of oil a year.

For all the tropical luxuriance of Britain's southern colonies, it is the cool northern regions within 20 degrees of the Arctic Circle that send the greatest volume of foodstuffs into Empire trade. Nova Scotia, Newfoundland, and Labrador are in one of the three greatest fishing zones of the world. About 70 per cent of the men of Labrador are fishermen, and Newfoundland has a comparable proportion, who go to the Grand Banks or down to Sable Island Banks off Nova Scotia for one of the world's foremost cod-fisheries.

Possibly the leading food items served from Britain's New World possessions is bread from Canada. The Dominion is the world's leading exporter of wheat. For balanced diet Canada exports also bacon and ham, salmon, apples, and cheese.

The second most important item in Canada's foreign commerce is wood, either logs from the silent forest blanket of the north, or wood pulp and paper from mills nearer the coast. The country contains one of the most abundant sources of nickel, producing four-fifths of the world's annual yield. It also produces half of the world's cobalt, for coloring. It ranks among the six foremost producing nations in its output of gold, silver, lead, and zinc. Copper is Canada's third most valuable export. Within the past decade, a new source of mineral wealth has been found—radium, from veins of pitchblende mined beside Great Bear Lake.

Bulletin No. 3, January 15, 1940.



Photograph by Harrison Howell Walker

FRENCH-SPEAKING INDIANS ARE AMONG AMERICA'S BRITISH SUBJECTS

A small fraction of Britain's subjects in the Americas are the Indians of Canada, many of whom live in the French-speaking region around Quebec. Trappers of the Lake St. John and Saguenay River section, north of Quebec, are staked to their winter supplies by the Hudson's Bay Company, for which they pay later with furs from the winter's catch. It was through such transactions that British influence was first established in the New World's north (the date of the company's origin appears on the sign). This Indian trapper can carry his supplies about 50 miles by auto; then he transfers them to a canoe and starts for his wilderness trapping grounds.

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Earliest Recorded Date Known in New World Encourages Explorers

IN 291 B.C., shortly before Europe's history recorded the Punic Wars between early Rome and Carthage, nearly 300 years before Asia Minor recorded the date of the birth of Christ, and six centuries before the Anglo-Saxons migrated to England, craftsmen were carving monuments in Mexico with dates from a more accurate calendar than the Old World knew before the 16th century A.D.

The date, corresponding to November 4, 291 B.C., carved in Maya Indian symbols, has been identified on a stone monument (illustration, next page) discovered in 1939 near Tres Zapotes in the state of Vera Cruz, Mexico, by an expedition sent jointly from the National Geographic Society and the Smithsonian Institution, under the leadership of Matthew W. Stirling, archeologist.

Encouraged by the importance of last year's find, Mr. Stirling left at the beginning of this year to lead another expedition, under the same auspices, into the promising new archeological field in southern Mexico, seeking clues to the origins of the ancient civilizations of Middle America (Central America plus Mexico).

New Expedition Will Explore World That Columbus Missed

The personnel of the expedition includes, in addition to Mr. Stirling, Dr. Philip Drucker, of the University of California; M. A. Carriker, ornithologist of the Smithsonian Institution, who will collect birds of the region; Richard H. Stewart, staff photographer of the National Geographic Society; and Mrs. Matthew W. Stirling. The Mexican government has granted its full cooperation.

Discovery of the dated stone has created not only a new possibility regarding the time of early Maya culture, but a new idea of its location as well. For the monument was unearthed more than 100 miles west of what had been considered the outermost limits of the once great Maya empire of Indian America. The discovery of such an early site quite outside the accepted Maya zone has suggested that this Vera Cruz coastal region was possibly the cradle of Maya civilization, from which the race later migrated to the lands—eastern Mexico, Guatemala, and Honduras—where Europeans discovered them. It was off the coast of Honduras that Columbus, on his fourth voyage to the New World, encountered a dugout canoe as long as a European ship, manned by civilized Indians and carrying textiles, weapons, and other manufactures; Columbus, however, did not put in to shore, but left only a tantalizing hint that he had brushed elbows with the rich Maya empire.

Dated Stone Monument Copied for National Geographic Society

The Tres Zapotes region in Vera Cruz, seat of the 1939 and the 1940 expeditions from the National Geographic Society and the Smithsonian Institution, gives evidence of having been a crossroads of early Middle American cultures. Among the carvings unearthed there have been indications that inhabitants had contacts with early Toltec, Zapotec, and Totonac as well as Maya civilizations. One of the purposes of the new expedition is to discover how these cultures influenced each other. One specific question for research is whether the people of this region were truly Maya, or were some other group who developed a culture including the famous calendar, and later passed it on to the Maya.

What appeared at first to be the most exciting discovery of 1939's National Geographic-Smithsonian Expedition was a giant stone head 6 feet high, with features differing from those of any other known American Indian sculptures (il-

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were made as part of the joint three-year research project in regard to auroras being made by the National Geographic Society and Cornell University.

Note: A rapid survey of man's knowledge of the universe, told in simple terms for non-technical reading, appeared in the *National Geographic Magazine* for July, 1939—"News of the Universe." The story was accompanied by photographs and a series of paintings on astronomical subjects. See also "Nature's Most Dramatic Spectacle" and "Eclipse Adventures on a Desert Isle," September, 1937.

See also in the GEOGRAPHIC NEWS BULLETINS: "Mars Gives Tantalizing Hints of Its Geography," October 30, 1939; "New Asteroid Joins Throng of Wandering Worlds," January 31, 1938; "Spectacles Staged by 1937 Skies," January 10, 1938; "Eclipses Once Dreaded; Now Eagerly Studied," December 6, 1937; "Ghostly Comets Haunt the Skies," November 15, 1937.

Bulletin No. 4, January 15, 1940.

Photograph by Richard R. Culver

MARS GOT SPECIAL ATTENTION FROM ASTRONOMERS AS WELL AS FROM WAR CORRESPONDENTS

To news writers in 1939 Mars was a synonym for a second World War, but to astronomers the name meant the fiery-red planet that came closer than usual to the earth. When Mars is visible, scientists study it with telescope and camera, and additional data are collected with the transit circle for the purpose of plotting its orbit and position in the sky. Instead of "drawing a bead" on the planet or star observed with the transit circle, the astronomer "draws a spider thread"; a spider web thread stretched across the telescopic eyepiece enables him to divide the star's image in half, and keep his sight squarely on it. This transit circle was photographed in the U. S. Naval Observatory in Washington, D. C.

lustration, cover). But when the 291 B.C. date was finally deciphered, the dated stone monument took first place in importance.

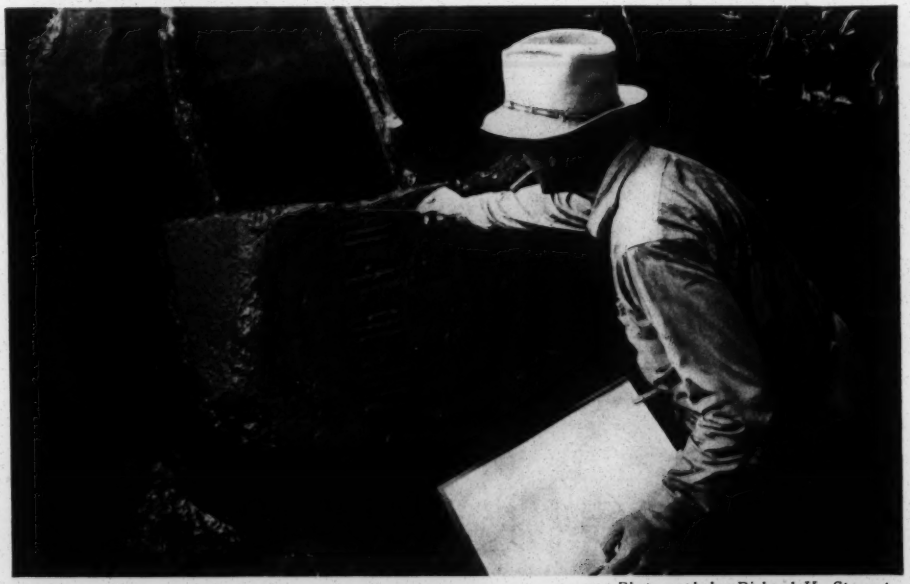
This epoch-making dated stone monument, which suggested the relative antiquity of the Tres Zapotes site, has been acclaimed as one of the most important archeological finds yet made in the New World.

Note: For a more complete discussion of the importance of the recent discoveries, see also "Discovering the New World's Oldest Dated Work of Man," *National Geographic Magazine*, August, 1939; "Yucatán, Home of the Gifted Maya," November, 1936; "Preserving Ancient America's Finest Sculptures," November, 1936; "Unearthing America's Ancient History," July, 1931; and "Chichen Itzá, an Ancient American Mecca," January, 1925.

Two series of paintings, "Portraits of Ancient Mayas, A Peace-Loving People" and "Life and Death in Ancient Maya Land," are available to teachers among the separate color sheets identical with the color illustrations bound in the *National Geographic Magazine*. Separate color sheets may be purchased only in sets of 48 sheets (30c) or 96 sheets (50c). A list of the separate color sheets and directions for ordering may be obtained by addressing the Washington, D. C., headquarters of the National Geographic Society.

See also in the GEOGRAPHIC NEWS BULLETINS: "Vera Cruz Finds Extend Limits of Maya Culture," March 6, 1939.

Bulletin No. 5, January 15, 1940.



Photograph by Richard H. Stewart

THE NEW WORLD'S OLDEST KNOWN DATE, RECORDED IN THE MAYA "MORSE CODE" OF DOTS AND DASHES, IS INTERPRETED AS NOVEMBER 4, 291 B.C.

This column of horizontal bars and dots represents a date which archeologists have translated into terms of the Christian calendar. In the Maya system of numerals, a bar (—) stood for 5, and a dot (.) for 1. Thus, $\doteq$ was 6 and $\doteq\doteq$ was 12. The position in the column corresponds to a unit of time measurement, just as numerals indicate a date by their position in the abbreviated form, 1/15/40 for January 15, 1940.

NEW WORLD'S OLDEST KNOWN RECORDED DATE ON EXHIBIT

A plaster replica of the dated stone monument found near Vera Cruz, Mexico, has been placed on exhibit in Explorers Hall at the National Geographic Society's Washington, D. C., headquarters. The date has been interpreted as corresponding to November 4, 291 B.C. (This is nearly two centuries earlier than the date which had previously been the oldest yet discovered.) The stone monument, showing a Maya date based on the highly accurate Maya calendar, was discovered by the first National Geographic Society-Smithsonian Institution Expedition to Mexico in 1939.